SEQUENCE LISTING

<110> CASE WESTERN RESERVE UNIVERSITY

<120> HYBRID AND CHIMERIC POLYPEPTIDES THAT REGULATE ACTIVATION OF COMPLEMENT

<130> 200512.00002

<140> PCT/IB05/050257
<141> 2005-01-21

<150> 60/537,860
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<170> PatentIn Ver. 3.3

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<212> PRT
<213> Homo sapiens

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Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala
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Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys
     50                  55                  60

Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile
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Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg
                 85                  90                  95

Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro
            100                 105                 110

Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu
        115                 120                 125

Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr
    130                 135                 140

Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys
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Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val
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Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr
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Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly
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Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr
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Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg
225                 230                 235                 240

Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly
                245                 250                 255

Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp
            260                 265                 270

Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Arg Gly Lys Ser Leu
        275                 280                 285

Thr Ser Lys Val Pro Pro Thr Val Gln Lys Pro Thr Thr Val Asn Val
    290                 295                 300

Pro Thr Thr Glu Val Ser Pro Thr Ser Gln Lys Thr Thr Thr Lys Thr
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Thr Thr Pro Asn Ala Gln Ala Thr Arg Ser Thr Pro Val Ser Arg Thr
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Thr Lys His Phe His Glu Thr Thr Pro Asn Lys Gly Ser Gly Thr Thr
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Ser Gly Thr Thr Arg Leu Leu Ser Gly His Thr Cys Phe Thr Leu Thr
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             20                  25                  30

Leu Ala Val Val Val Leu Leu Ala Leu Pro Val Ala Trp Gly Gln Cys
         35                  40                  45

Asn Ala Pro Glu Trp Leu Pro Phe Ala Arg Pro Thr Asn Leu Thr Asp
     50                  55                  60

Glu Phe Glu Phe Pro Ile Gly Thr Tyr Leu Asn Tyr Glu Cys Arg Pro
 65                  70                  75                  80

Gly Tyr Ser Gly Arg Pro Phe Ser Ile Ile Cys Leu Lys Asn Ser Val
                 85                  90                  95

Trp Thr Gly Ala Lys Asp Arg Cys Arg Arg Lys Ser Cys Arg Asn Pro
            100                 105                 110

Pro Asp Pro Val Asn Gly Met Val His Val Ile Lys Gly Ile Gln Phe
        115                 120                 125

Gly Ser Gln Ile Lys Tyr Ser Cys Thr Lys Gly Tyr Arg Leu Ile Gly
    130                 135                 140
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Ser Ser Ser Ala Thr Cys Ile Ile Ser Gly Asp Thr Val Ile Trp Asp
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Asn Glu Thr Pro Ile Cys Asp Arg Ile Pro Cys Gly Leu Pro Pro Thr
                165                 170                 175

Ile Thr Asn Gly Asp Phe Ile Ser Thr Asn Arg Glu Asn Phe His Tyr
            180                 185                 190

Gly Ser Val Val Thr Tyr Arg Cys Asn Pro Gly Ser Gly Gly Arg Lys
        195                 200                 205

Val Phe Glu Leu Val Gly Glu Pro Ser Ile Tyr Cys Thr Ser Asn Asp
    210                 215                 220

Asp Gln Val Gly Ile Trp Ser Gly Pro Ala Pro Gln Cys Ile Ile Pro
225                 230                 235                 240

Asn Lys Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp
                245                 250                 255

Asn Arg Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln
            260                 265                 270

Pro Gly Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu
        275                 280                 285

Asn Lys Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro
    290                 295                 300

Pro Pro Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn
305                 310                 315                 320

Phe Ser Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp
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Leu Arg Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser
            340                 345                 350

Pro Ala Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly
        355                 360                 365

Gln Leu Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly
    370                 375                 380

Ala Lys Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser
385                 390                 395                 400

Ser Ala Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser
                405                 410                 415

Ser Val Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile
            420                 425                 430

Pro Asn Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly
        435                 440                 445
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Lys Ala Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser
    450                 455                 460

Phe Asp Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln
465                 470                 475                 480

Gly Asn Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile Leu Gly
                485                 490                 495

His Cys Gln Ala Pro Asp His Phe Leu Phe Ala Lys Leu Lys Thr Gln
            500                 505                 510

Thr Asn Ala Ser Asp Phe Pro Ile Gly Thr Ser Leu Lys Tyr Glu Cys
        515                 520                 525

Arg Pro Glu Tyr Tyr Gly Arg Pro Phe Ser Ile Thr Cys Leu Asp Asn
    530                 535                 540

Leu Val Trp Ser Ser Pro Lys Asp Val Cys Lys Arg Lys Ser Cys Lys
545                 550                 555                 560

Thr Pro Pro Asp Pro Val Asn Gly Met Val His Val Ile Thr Asp Ile
                565                 570                 575

Gln Val Gly Ser Arg Ile Asn Tyr Ser Cys Thr Thr Gly His Arg Leu
            580                 585                 590

Ile Gly His Ser Ser Ala Glu Cys Ile Leu Ser Gly Asn Ala Ala His
        595                 600                 605

Trp Ser Thr Lys Pro Pro Ile Cys Gln Arg Ile Pro Cys Gly Leu Pro
    610                 615                 620

Pro Thr Ile Ala Asn Gly Asp Phe Ile Ser Thr Asn Arg Glu Asn Phe
625                 630                 635                 640

His Tyr Gly Ser Val Val Thr Tyr Arg Cys Asn Pro Gly Ser Gly Gly
                645                 650                 655

Arg Lys Val Phe Glu Leu Val Gly Glu Pro Ser Ile Tyr Cys Thr Ser
            660                 665                 670

Asn Asp Asp Gln Val Gly Ile Trp Ser Gly Pro Ala Pro Gln Cys Ile
        675                 680                 685

Ile Pro Asn Lys Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val
    690                 695                 700

Ser Asp Asn Arg Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg
705                 710                 715                 720

Cys Gln Pro Gly Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln
                725                 730                 735

Ala Leu Asn Lys Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys
            740                 745                 750
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Gln Pro Pro Pro Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys
        755                 760                 765

Asp Asn Phe Ser Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly
    770                 775                 780

Tyr Asp Leu Arg Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp
785                 790                 795                 800

Trp Ser Pro Ala Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe
                805                 810                 815

Met Gly Gln Leu Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln
            820                 825                 830

Leu Gly Ala Lys Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys
        835                 840                 845

Gly Ser Ser Ala Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp
    850                 855                 860

Asn Ser Ser Val Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro
865                 870                 875                 880

Val Ile Pro Asn Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro
                885                 890                 895

Phe Gly Lys Ala Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly
            900                 905                 910

Thr Ser Phe Asp Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp
        915                 920                 925

Pro Gln Gly Asn Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile
    930                 935                 940

Leu Gly His Cys Gln Ala Pro Asp His Phe Leu Phe Ala Lys Leu Lys
945                 950                 955                 960

Thr Gln Thr Asn Ala Ser Asp Phe Pro Ile Gly Thr Ser Leu Lys Tyr
                965                 970                 975

Glu Cys Arg Pro Glu Tyr Tyr Gly Arg Pro Phe Ser Ile Thr Cys Leu
            980                 985                 990

Asp Asn Leu Val Trp Ser Ser Pro Lys Asp Val Cys Lys Arg Lys Ser
        995                1000                1005

Cys Lys Thr Pro Pro Asp Pro Val Asn Gly Met Val His Val Ile Thr
   1010                1015                1020

Asp Ile Gln Val Gly Ser Arg Ile Asn Tyr Ser Cys Thr Thr Gly His
1025                1030                1035                1040

Arg Leu Ile Gly His Ser Ser Ala Glu Cys Ile Leu Ser Gly Asn Thr
                1045                1050                1055
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Ala His Trp Ser Thr Lys Pro Pro Ile Cys Gln Arg Ile Pro Cys Gly
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Leu Pro Pro Thr Ile Ala Asn Gly Asp Phe Ile Ser Thr Asn Arg Glu
      1075                1080                1085

Asn Phe His Tyr Gly Ser Val Val Thr Tyr Arg Cys Asn Leu Gly Ser
  1090                1095                1100

Arg Gly Arg Lys Val Phe Glu Leu Val Gly Glu Pro Ser Ile Tyr Cys
1105                1110                1115                1120

Thr Ser Asn Asp Asp Gln Val Gly Ile Trp Ser Gly Pro Ala Pro Gln
              1125                1130                1135

Cys Ile Ile Pro Asn Lys Cys Thr Pro Pro Asn Val Glu Asn Gly Ile
          1140                1145                1150

Leu Val Ser Asp Asn Arg Ser Leu Phe Ser Leu Asn Glu Val Val Glu
      1155                1160                1165

Phe Arg Cys Gln Pro Gly Phe Val Met Lys Gly Pro Arg Arg Val Lys
  1170                1175                1180

Cys Gln Ala Leu Asn Lys Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg
1185                1190                1195                1200

Val Cys Gln Pro Pro Pro Glu Ile Leu His Gly Glu His Thr Pro Ser
              1205                1210                1215

His Gln Asp Asn Phe Ser Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu
          1220                1225                1230

Pro Gly Tyr Asp Leu Arg Gly Ala Ala Ser Leu His Cys Thr Pro Gln
      1235                1240                1245

Gly Asp Trp Ser Pro Glu Ala Pro Arg Cys Ala Val Lys Ser Cys Asp
  1250                1255                1260

Asp Phe Leu Gly Gln Leu Pro His Gly Arg Val Leu Phe Pro Leu Asn
1265                1270                1275                1280

Leu Gln Leu Gly Ala Lys Val Ser Phe Val Cys Asp Glu Gly Phe Arg
              1285                1290                1295

Leu Lys Gly Ser Ser Val Ser His Cys Val Leu Val Gly Met Arg Ser
          1300                1305                1310

Leu Trp Asn Asn Ser Val Pro Val Cys Glu His Ile Phe Cys Pro Asn
      1315                1320                1325

Pro Pro Ala Ile Leu Asn Gly Arg His Thr Gly Thr Pro Ser Gly Asp
  1330                1335                1340

Ile Pro Tyr Gly Lys Glu Ile Ser Tyr Thr Cys Asp Pro His Pro Asp
1345                1350                1355                1360
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Arg Gly Met Thr Phe Asn Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr
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Ser Asp Pro His Gly Asn Gly Val Trp Ser Ser Pro Ala Pro Arg Cys
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Glu Leu Ser Val Arg Ala Gly His Cys Lys Thr Pro Glu Gln Phe Pro
        1395                1400                1405

Phe Ala Ser Pro Thr Ile Pro Ile Asn Asp Phe Glu Phe Pro Val Gly
    1410                1415                1420

Thr Ser Leu Asn Tyr Glu Cys Arg Pro Gly Tyr Phe Gly Lys Met Phe
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Ser Ile Ser Cys Leu Glu Asn Leu Val Trp Ser Ser Val Glu Asp Asn
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Cys Arg Arg Lys Ser Cys Gly Pro Pro Pro Glu Pro Phe Asn Gly Met
            1460                1465                1470

Val His Ile Asn Thr Asp Thr Gln Phe Gly Ser Thr Val Asn Tyr Ser
        1475                1480                1485

Cys Asn Glu Gly Phe Arg Leu Ile Gly Ser Pro Ser Thr Thr Cys Leu
    1490                1495                1500

Val Ser Gly Asn Asn Val Thr Trp Asp Lys Lys Ala Pro Ile Cys Glu
1505                1510                1515                1520

Ile Ile Ser Cys Glu Pro Pro Pro Thr Ile Ser Asn Gly Asp Phe Tyr
                1525                1530                1535

Ser Asn Asn Arg Thr Ser Phe His Asn Gly Thr Val Val Thr Tyr Gln
            1540                1545                1550

Cys His Thr Gly Pro Asp Gly Glu Gln Leu Phe Glu Leu Val Gly Glu
        1555                1560                1565

Arg Ser Ile Tyr Cys Thr Ser Lys Asp Asp Gln Val Gly Val Trp Ser
    1570                1575                1580

Ser Pro Pro Pro Arg Cys Ile Ser Thr Asn Lys Cys Thr Ala Pro Glu
1585                1590                1595                1600

Val Glu Asn Ala Ile Arg Val Pro Gly Asn Arg Ser Phe Phe Ser Leu
                1605                1610                1615

Thr Glu Ile Ile Arg Phe Arg Cys Gln Pro Gly Phe Val Met Val Gly
            1620                1625                1630

Ser His Thr Val Gln Cys Gln Thr Asn Gly Arg Trp Gly Pro Lys Leu
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Pro His Cys Ser Arg Val Cys Gln Pro Pro Pro Glu Ile Leu His Gly
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Glu His Thr Leu Ser His Gln Asp Asn Phe Ser Pro Gly Gln Glu Val
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His Cys Thr Pro Gln Gly Asp Trp Ser Pro Glu Ala Pro Arg Cys Thr
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Val Lys Ser Cys Asp Asp Phe Leu Gly Gln Leu Pro His Gly Arg Val
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Leu Leu Pro Leu Asn Leu Gln Leu Gly Ala Lys Val Ser Phe Val Cys
1730 1735 1740

Asp Glu Gly Phe Arg Leu Lys Gly Arg Ser Ala Ser His Cys Val Leu
1745 1750 1755 1760

Ala Gly Met Lys Ala Leu Trp Asn Ser Ser Val Pro Val Cys Glu Gln
1765 1770 1775

Ile Phe Cys Pro Asn Pro Pro Ala Ile Leu Asn Gly Arg His Thr Gly
1780 1785 1790

Thr Pro Phe Gly Asp Ile Pro Tyr Gly Lys Glu Ile Ser Tyr Ala Cys
1795 1800 1805

Asp Thr His Pro Asp Arg Gly Met Thr Phe Asn Leu Ile Gly Glu Ser
1810 1815 1820

Ser Ile Arg Cys Thr Ser Asp Pro Gln Gly Asn Gly Val Trp Ser Ser
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Pro Ala Pro Arg Cys Glu Leu Ser Val Pro Ala Ala Cys Pro His Pro
1845 1850 1855

Pro Lys Ile Gln Asn Gly His Tyr Ile Gly Gly His Val Ser Leu Tyr
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1875 1880 1885

Val Gly Lys Gly Phe Ile Phe Cys Thr Asp Gln Gly Ile Trp Ser Gln
1890 1895 1900

Leu Asp His Tyr Cys Lys Glu Val Asn Cys Ser Phe Pro Leu Phe Met
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Asn Gly Ile Ser Lys Glu Leu Glu Met Lys Lys Val Tyr His Tyr Gly
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Asp Tyr Val Thr Leu Lys Cys Glu Asp Gly Tyr Thr Leu Glu Gly Ser
1940 1945 1950

Pro Trp Ser Gln Cys Gln Ala Asp Asp Arg Trp Asp Pro Pro Leu Ala
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Lys Cys Thr Ser Arg Ala His Asp Ala Leu Ile Val Gly Thr Leu Ser
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Gly Thr Ile Phe Phe Ile Leu Leu Ile Ile Phe Leu Ser Trp Ile Ile
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Leu Lys His Arg Lys Gly Asn Asn Ala His Glu Asn Pro Lys Glu Val
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<210> 5
<211> 384
<212> PRT
<213> Homo sapiens

<400> 5

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Pro Gly Leu Leu Leu Ala Ala Met Val Leu Leu Leu Tyr Ser Phe Ser
             20                  25                  30

Asp Ala Cys Glu Glu Pro Pro Thr Phe Glu Ala Met Glu Leu Ile Gly
         35                  40                  45

Lys Pro Lys Pro Tyr Tyr Glu Ile Gly Glu Arg Val Asp Tyr Lys Cys
     50                  55                  60

Lys Lys Gly Tyr Phe Tyr Ile Pro Pro Leu Ala Thr His Thr Ile Cys
 65                  70                  75                  80

Asp Arg Asn His Thr Trp Leu Pro Val Ser Asp Asp Ala Cys Tyr Arg
                 85                  90                  95

Glu Thr Cys Pro Tyr Ile Arg Asp Pro Leu Asn Gly Gln Ala Val Pro
            100                 105                 110

Ala Asn Gly Thr Tyr Glu Phe Gly Tyr Gln Met His Phe Ile Cys Asn
        115                 120                 125

Glu Gly Tyr Tyr Leu Ile Gly Glu Glu Ile Leu Tyr Cys Glu Leu Lys
    130                 135                 140
```

```
Gly Ser Val Ala Ile Trp Ser Gly Lys Pro Pro Ile Cys Glu Lys Val
145                 150                 155                 160

Leu Cys Thr Pro Pro Pro Lys Ile Lys Asn Gly Lys His Thr Phe Ser
                165                 170                 175

Glu Val Glu Val Phe Glu Tyr Leu Asp Ala Val Thr Tyr Ser Cys Asp
            180                 185                 190

Pro Ala Pro Gly Pro Asp Pro Phe Ser Leu Ile Gly Glu Ser Thr Ile
        195                 200                 205

Tyr Cys Gly Asp Asn Ser Val Trp Ser Arg Ala Ala Pro Glu Cys Lys
    210                 215                 220

Val Val Lys Cys Arg Phe Pro Val Val Glu Asn Gly Lys Gln Ile Ser
225                 230                 235                 240

Gly Phe Gly Lys Lys Phe Tyr Tyr Lys Ala Thr Val Met Phe Glu Cys
                245                 250                 255

Asp Lys Gly Phe Tyr Leu Asp Gly Ser Asp Thr Ile Val Cys Asp Ser
            260                 265                 270

Asn Ser Thr Trp Asp Pro Pro Val Pro Lys Cys Leu Lys Val Ser Thr
        275                 280                 285

Ser Ser Thr Thr Lys Ser Pro Ala Ser Ser Ala Ser Gly Pro Arg Pro
    290                 295                 300

Thr Tyr Lys Pro Pro Val Ser Asn Tyr Pro Gly Tyr Pro Lys Pro Glu
305                 310                 315                 320

Glu Gly Ile Leu Asp Ser Leu Asp Val Trp Val Ile Ala Val Ile Val
                325                 330                 335

Ile Ala Ile Val Val Gly Val Ala Val Ile Cys Val Val Pro Tyr Arg
            340                 345                 350

Tyr Leu Gln Arg Arg Lys Lys Lys Gly Lys Ala Asp Gly Gly Ala Glu
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Tyr Ala Thr Tyr Gln Thr Lys Ser Thr Thr Pro Ala Glu Gln Arg Gly
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<210> 6
<211> 1530
<212> DNA
<213> Homo sapiens

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<210> 7
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 7
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<210> 8
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 8
acagtgctcg agcattcagg tggtgggcca ctcca 35

<210> 9
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 9
atatacctcg agtcctaaca aatgcacgcc tccaaatgtg g 41

<210> 10
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 10
acagtgatgc attggtttgg gttttcaact tggc 34

<210> 11
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 11
atatacatgc atctgacttt cccattggga catctttaaa g 41

<210> 12
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 12
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<210> 13
<211> 996
<212> PRT
<213> Homo sapiens

<400> 13
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Glu Leu Pro Arg Leu Leu Leu Leu Val Leu Leu Cys Leu Pro Ala Val
20 25 30

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Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala
          35                  40                  45

Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys
      50                  55                  60

Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile
 65                  70                  75                  80

Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg
                 85                  90                  95

Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro
            100                 105                 110

Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu
        115                 120                 125

Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr
    130                 135                 140

Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys
145                 150                 155                 160

Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val
                165                 170                 175

Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr
            180                 185                 190

Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly
        195                 200                 205

Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr
    210                 215                 220

Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg
225                 230                 235                 240

Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly
                245                 250                 255

Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp
            260                 265                 270

Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Ser Ser Pro Asn Lys
        275                 280                 285

Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp Asn Arg
    290                 295                 300

Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln Pro Gly
305                 310                 315                 320

Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu Asn Lys
                325                 330                 335
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Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro Pro Pro
            340                 345                 350

Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn Phe Ser
        355                 360                 365

Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp Leu Arg
    370                 375                 380

Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser Pro Ala
385                 390                 395                 400

Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly Gln Leu
                405                 410                 415

Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly Ala Lys
            420                 425                 430

Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser Ser Ala
        435                 440                 445

Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser Ser Val
    450                 455                 460

Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile Pro Asn
465                 470                 475                 480

Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly Lys Ala
                485                 490                 495

Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser Phe Asp
            500                 505                 510

Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln Gly Asn
        515                 520                 525

Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile Leu Gly His Cys
    530                 535                 540

Gln Ala Pro Asp His Phe Leu Phe Ala Lys Leu Lys Thr Gln Thr Asn
545                 550                 555                 560

Ala Ser Asp Phe Pro Ile Gly Thr Ser Leu Lys Tyr Glu Cys Arg Pro
                565                 570                 575

Glu Tyr Tyr Gly Arg Pro Phe Ser Ile Thr Cys Leu Asp Asn Leu Val
            580                 585                 590

Trp Ser Ser Pro Lys Asp Val Cys Lys Arg Lys Ser Cys Lys Thr Pro
        595                 600                 605

Pro Asp Pro Val Asn Gly Met Val His Val Ile Thr Asp Ile Gln Val
    610                 615                 620

Gly Ser Arg Ile Asn Tyr Ser Cys Thr Thr Gly His Arg Leu Ile Gly
625                 630                 635                 640
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```
His Ser Ser Ala Glu Cys Ile Leu Ser Gly Asn Ala Ala His Trp Ser
                645                 650                 655

Thr Lys Pro Pro Ile Cys Gln Arg Ile Pro Cys Gly Leu Pro Pro Thr
            660                 665                 670

Ile Ala Asn Gly Asp Phe Ile Ser Thr Asn Arg Glu Asn Phe His Tyr
        675                 680                 685

Gly Ser Val Val Thr Tyr Arg Cys Asn Pro Gly Ser Gly Gly Arg Lys
    690                 695                 700

Val Phe Glu Leu Val Gly Glu Pro Ser Ile Tyr Cys Thr Ser Asn Asp
705                 710                 715                 720

Asp Gln Val Gly Ile Trp Ser Gly Pro Ala Pro Gln Cys Ile Ile Pro
                725                 730                 735

Asn Lys Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp
            740                 745                 750

Asn Arg Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln
        755                 760                 765

Pro Gly Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu
    770                 775                 780

Asn Lys Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro
785                 790                 795                 800

Pro Pro Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn
                805                 810                 815

Phe Ser Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp
            820                 825                 830

Leu Arg Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser
        835                 840                 845

Pro Ala Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly
    850                 855                 860

Gln Leu Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly
865                 870                 875                 880

Ala Lys Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser
                885                 890                 895

Ser Ala Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser
            900                 905                 910

Ser Val Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile
        915                 920                 925

Pro Asn Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly
    930                 935                 940
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Lys Ala Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser
945                 950                 955                 960

Phe Asp Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln
                965                 970                 975

Gly Asn Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile His His
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His His His His
        995
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<210> 14
<211> 2997
<212> DNA
<213> Homo sapiens

<400> 14

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<210> 15
<211> 1446
<212> PRT
<213> Homo sapiens

<400> 15

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Met Thr Val Ala Arg Pro Ser Val Pro Ala Ala Leu Pro Leu Leu Gly
  1               5                  10                  15

Glu Leu Pro Arg Leu Leu Leu Leu Val Leu Leu Cys Leu Pro Ala Val
             20                  25                  30

Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala
         35                  40                  45

Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys
     50                  55                  60

Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile
 65                  70                  75                  80

Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg
                 85                  90                  95

Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro
            100                 105                 110

Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu
        115                 120                 125

Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr
    130                 135                 140

Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys
145                 150                 155                 160

Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val
                165                 170                 175

Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr
            180                 185                 190

Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly
        195                 200                 205
```

```
Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr
    210                 215                 220

Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg
225                 230                 235                 240

Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly
                245                 250                 255

Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp
            260                 265                 270

Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Ser Ser Pro Asn Lys
        275                 280                 285

Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp Asn Arg
    290                 295                 300

Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln Pro Gly
305                 310                 315                 320

Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu Asn Lys
                325                 330                 335

Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro Pro Pro
            340                 345                 350

Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn Phe Ser
        355                 360                 365

Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp Leu Arg
    370                 375                 380

Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser Pro Ala
385                 390                 395                 400

Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly Gln Leu
                405                 410                 415

Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly Ala Lys
            420                 425                 430

Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser Ser Ala
        435                 440                 445

Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser Ser Val
    450                 455                 460

Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile Pro Asn
465                 470                 475                 480

Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly Lys Ala
                485                 490                 495

Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser Phe Asp
            500                 505                 510
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Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln Gly Asn
515 520 525

Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile Leu Gly His Cys
530 535 540

Gln Ala Pro Asp His Phe Leu Phe Ala Lys Leu Lys Thr Gln Thr Asn
545 550 555 560

Ala Ser Asp Phe Pro Ile Gly Thr Ser Leu Lys Tyr Glu Cys Arg Pro
565 570 575

Glu Tyr Tyr Gly Arg Pro Phe Ser Ile Thr Cys Leu Asp Asn Leu Val
580 585 590

Trp Ser Ser Pro Lys Asp Val Cys Lys Arg Lys Ser Cys Lys Thr Pro
595 600 605

Pro Asp Pro Val Asn Gly Met Val His Val Ile Thr Asp Ile Gln Val
610 615 620

Gly Ser Arg Ile Asn Tyr Ser Cys Thr Thr Gly His Arg Leu Ile Gly
625 630 635 640

His Ser Ser Ala Glu Cys Ile Leu Ser Gly Asn Ala Ala His Trp Ser
645 650 655

Thr Lys Pro Pro Ile Cys Gln Arg Ile Pro Cys Gly Leu Pro Pro Thr
660 665 670

Ile Ala Asn Gly Asp Phe Ile Ser Thr Asn Arg Glu Asn Phe His Tyr
675 680 685

Gly Ser Val Val Thr Tyr Arg Cys Asn Pro Gly Ser Gly Gly Arg Lys
690 695 700

Val Phe Glu Leu Val Gly Glu Pro Ser Ile Tyr Cys Thr Ser Asn Asp
705 710 715 720

Asp Gln Val Gly Ile Trp Ser Gly Pro Ala Pro Gln Cys Ile Ile Pro
725 730 735

Asn Lys Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp
740 745 750

Asn Arg Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln
755 760 765

Pro Gly Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu
770 775 780

Asn Lys Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro
785 790 795 800

Pro Pro Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn
805 810 815

```
Phe Ser Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp
            820                 825                 830

Leu Arg Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser
        835                 840                 845

Pro Ala Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly
    850                 855                 860

Gln Leu Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly
865                 870                 875                 880

Ala Lys Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser
                885                 890                 895

Ser Ala Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser
            900                 905                 910

Ser Val Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile
        915                 920                 925

Pro Asn Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly
    930                 935                 940

Lys Ala Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser
945                 950                 955                 960

Phe Asp Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln
                965                 970                 975

Gly Asn Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile Leu Gly
            980                 985                 990

His Cys Gln Ala Pro Asp His Phe Leu Phe Ala Lys Leu Lys Thr Gln
        995                1000                1005

Thr Asn Ala Ser Asp Phe Pro Ile Gly Thr Ser Leu Lys Tyr Glu Cys
   1010                1015                1020

Arg Pro Glu Tyr Tyr Gly Arg Pro Phe Ser Ile Thr Cys Leu Asp Asn
1025                1030                1035                1040

Leu Val Trp Ser Ser Pro Lys Asp Val Cys Lys Arg Lys Ser Cys Lys
                1045                1050                1055

Thr Pro Pro Asp Pro Val Asn Gly Met Val His Val Ile Thr Asp Ile
            1060                1065                1070

Gln Val Gly Ser Arg Ile Asn Tyr Ser Cys Thr Thr Gly His Arg Leu
        1075                1080                1085

Ile Gly His Ser Ser Ala Glu Cys Ile Leu Ser Gly Asn Ala Ala His
   1090                1095                1100

Trp Ser Thr Lys Pro Pro Ile Cys Gln Arg Ile Pro Cys Gly Leu Pro
1105                1110                1115                1120
```

```
Pro Thr Ile Ala Asn Gly Asp Phe Ile Ser Thr Asn Arg Glu Asn Phe
                1125                1130                1135

His Tyr Gly Ser Val Val Thr Tyr Arg Cys Asn Pro Gly Ser Gly Gly
            1140                1145                1150

Arg Lys Val Phe Glu Leu Val Gly Glu Pro Ser Ile Tyr Cys Thr Ser
        1155                1160                1165

Asn Asp Asp Gln Val Gly Ile Trp Ser Gly Pro Ala Pro Gln Cys Ile
    1170                1175                1180

Ile Pro Asn Lys Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val
1185                1190                1195                1200

Ser Asp Asn Arg Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg
                1205                1210                1215

Cys Gln Pro Gly Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln
            1220                1225                1230

Ala Leu Asn Lys Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys
        1235                1240                1245

Gln Pro Pro Pro Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys
    1250                1255                1260

Asp Asn Phe Ser Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly
1265                1270                1275                1280

Tyr Asp Leu Arg Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp
                1285                1290                1295

Trp Ser Pro Ala Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe
            1300                1305                1310

Met Gly Gln Leu Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln
        1315                1320                1325

Leu Gly Ala Lys Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys
    1330                1335                1340

Gly Ser Ser Ala Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp
1345                1350                1355                1360

Asn Ser Ser Val Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro
                1365                1370                1375

Val Ile Pro Asn Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro
            1380                1385                1390

Phe Gly Lys Ala Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly
        1395                1400                1405

Thr Ser Phe Asp Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp
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Pro Gln Gly Asn Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile
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His His His His His His
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<211> 4347
<212> DNA
<213> Homo sapiens

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<210> 17
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 17
atatacgaat tctggttgag tccaaatatg gtccc 35

<210> 18
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 18
acagtgagat ctttatcatt tacccggaga cagggag 37

<210> 19
<211> 771
<212> PRT
<213> Homo sapiens

<400> 19

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Met Thr Val Ala Arg Pro Ser Val Pro Ala Ala Leu Pro Leu Leu Gly
  1               5                  10                  15

Glu Leu Pro Arg Leu Leu Leu Leu Val Leu Leu Cys Leu Pro Ala Val
             20                  25                  30

Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala
         35                  40                  45

Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys
     50                  55                  60

Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile
 65                  70                  75                  80

Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg
                 85                  90                  95

Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro
            100                 105                 110

Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu
        115                 120                 125

Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr
    130                 135                 140

Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys
145                 150                 155                 160

Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val
                165                 170                 175

Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr
            180                 185                 190

Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly
        195                 200                 205

Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr
    210                 215                 220

Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg
225                 230                 235                 240

Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly
                245                 250                 255

Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp
            260                 265                 270
```

```
Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Ser Ser Pro Asn Lys
        275                 280                 285

Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp Asn Arg
    290                 295                 300

Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln Pro Gly
305                 310                 315                 320

Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu Asn Lys
                325                 330                 335

Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro Pro Pro
            340                 345                 350

Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn Phe Ser
        355                 360                 365

Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp Leu Arg
    370                 375                 380

Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser Pro Ala
385                 390                 395                 400

Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly Gln Leu
                405                 410                 415

Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly Ala Lys
            420                 425                 430

Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser Ser Ala
        435                 440                 445

Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser Ser Val
    450                 455                 460

Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile Pro Asn
465                 470                 475                 480

Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly Lys Ala
                485                 490                 495

Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser Phe Asp
            500                 505                 510

Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln Gly Asn
        515                 520                 525

Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile Leu Val Glu Ser
    530                 535                 540

Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly
545                 550                 555                 560

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
                565                 570                 575
```

```
Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln
            580                 585                 590

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
        595                 600                 605

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
    610                 615                 620

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
625                 630                 635                 640

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
                645                 650                 655

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
            660                 665                 670

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
        675                 680                 685

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
    690                 695                 700

Trp Glu Ser Asn Gly Gln Pro Glu Asp Asn Tyr Lys Thr Thr Pro Pro
705                 710                 715                 720

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
                725                 730                 735

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
            740                 745                 750

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
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Pro Gly Lys
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<211> 2325
<212> DNA
<213> Homo sapiens

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aatagcagtg ttccagtgtg tgaacaaatc ttttgtccaa gtcctccagt tattcctaat 1440
gggagacaca caggaaaacc tctggaagtc tttccctttg gaaaagcagt aaattacaca 1500
tgcgaccccc acccagacag agggacgagc ttcgacctca ttggagagag caccatccgc 1560
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tggtacgtgg atggcgtgga ggtgcataat gccaagacaa agccgcggga ggagcagttc 1860
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aaggagtaca agtgcaaggt ctccaacaaa ggcctcccgt cctccatcga gaaaaccatc 1980
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gtgctggact ccgacggctc cttcttcctc tacagcaggc taaccgtgga caagagcagg 2220
tggcaggagg ggaatgtctt ctcatgctcc gtgatgcatg aggctctgca caaccactac 2280
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<210> 21
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 21
atatacgaat tctgggtcac tgtgaggagc caccaacatt tgaagc 46

<210> 22
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 22
acagtgagat ctttagtgat ggtgatggtg atgcgacact ttaagacact ttggaac 57

<210> 23
<211> 802
<212> PRT
<213> Homo sapiens

<400> 23

```
Met Thr Val Ala Arg Pro Ser Val Pro Ala Ala Leu Pro Leu Leu Gly
  1               5                  10                  15

Glu Leu Pro Arg Leu Leu Leu Leu Val Leu Leu Cys Leu Pro Ala Val
            20                  25                  30

Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala
        35                  40                  45

Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys
    50                  55                  60

Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile
65                  70                  75                  80

Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg
                85                  90                  95

Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro
            100                 105                 110

Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu
        115                 120                 125

Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr
    130                 135                 140

Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys
145                 150                 155                 160

Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val
                165                 170                 175

Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr
            180                 185                 190

Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly
        195                 200                 205

Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr
    210                 215                 220

Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg
225                 230                 235                 240

Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly
                245                 250                 255

Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp
            260                 265                 270
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Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Ser Ser Pro Asn Lys
        275                 280                 285

Cys Thr Pro Pro Asn Val Glu Asn Gly Ile Leu Val Ser Asp Asn Arg
    290                 295                 300

Ser Leu Phe Ser Leu Asn Glu Val Val Glu Phe Arg Cys Gln Pro Gly
305                 310                 315                 320

Phe Val Met Lys Gly Pro Arg Arg Val Lys Cys Gln Ala Leu Asn Lys
                325                 330                 335

Trp Glu Pro Glu Leu Pro Ser Cys Ser Arg Val Cys Gln Pro Pro Pro
            340                 345                 350

Asp Val Leu His Ala Glu Arg Thr Gln Arg Asp Lys Asp Asn Phe Ser
        355                 360                 365

Pro Gly Gln Glu Val Phe Tyr Ser Cys Glu Pro Gly Tyr Asp Leu Arg
    370                 375                 380

Gly Ala Ala Ser Met Arg Cys Thr Pro Gln Gly Asp Trp Ser Pro Ala
385                 390                 395                 400

Ala Pro Thr Cys Glu Val Lys Ser Cys Asp Asp Phe Met Gly Gln Leu
                405                 410                 415

Leu Asn Gly Arg Val Leu Phe Pro Val Asn Leu Gln Leu Gly Ala Lys
            420                 425                 430

Val Asp Phe Val Cys Asp Glu Gly Phe Gln Leu Lys Gly Ser Ser Ala
        435                 440                 445

Ser Tyr Cys Val Leu Ala Gly Met Glu Ser Leu Trp Asn Ser Ser Val
    450                 455                 460

Pro Val Cys Glu Gln Ile Phe Cys Pro Ser Pro Pro Val Ile Pro Asn
465                 470                 475                 480

Gly Arg His Thr Gly Lys Pro Leu Glu Val Phe Pro Phe Gly Lys Ala
                485                 490                 495

Val Asn Tyr Thr Cys Asp Pro His Pro Asp Arg Gly Thr Ser Phe Asp
            500                 505                 510

Leu Ile Gly Glu Ser Thr Ile Arg Cys Thr Ser Asp Pro Gln Gly Asn
        515                 520                 525

Gly Val Trp Ser Ser Pro Ala Pro Arg Cys Gly Ile Leu Gly His Cys
    530                 535                 540

Glu Glu Pro Pro Thr Phe Glu Ala Met Glu Leu Ile Gly Lys Pro Lys
545                 550                 555                 560

Pro Tyr Tyr Glu Ile Gly Glu Arg Val Asp Tyr Lys Cys Lys Lys Gly
                565                 570                 575
```

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Tyr Phe Tyr Ile Pro Pro Leu Ala Thr His Thr Ile Cys Asp Arg Asn
            580                 585                 590

His Thr Trp Leu Pro Val Ser Asp Asp Ala Cys Tyr Arg Glu Thr Cys
        595                 600                 605

Pro Tyr Ile Arg Asp Pro Leu Asn Gly Gln Ala Val Pro Ala Asn Gly
    610                 615                 620

Thr Tyr Glu Phe Gly Tyr Gln Met His Phe Ile Cys Asn Glu Gly Tyr
625                 630                 635                 640

Tyr Leu Ile Gly Glu Glu Ile Leu Tyr Cys Glu Leu Lys Gly Ser Val
                645                 650                 655

Ala Ile Trp Ser Gly Lys Pro Pro Ile Cys Glu Lys Val Leu Cys Thr
            660                 665                 670

Pro Pro Pro Lys Ile Lys Asn Gly Lys His Thr Phe Ser Glu Val Glu
        675                 680                 685

Val Phe Glu Tyr Leu Asp Ala Val Thr Tyr Ser Cys Asp Pro Ala Pro
    690                 695                 700

Gly Pro Asp Pro Phe Ser Leu Ile Gly Glu Ser Thr Ile Tyr Cys Gly
705                 710                 715                 720

Asp Asn Ser Val Trp Ser Arg Ala Ala Pro Glu Cys Lys Val Val Lys
                725                 730                 735

Cys Arg Phe Pro Val Val Glu Asn Gly Lys Gln Ile Ser Gly Phe Gly
            740                 745                 750

Lys Lys Phe Tyr Tyr Lys Ala Thr Val Met Phe Glu Cys Asp Lys Gly
        755                 760                 765

Phe Tyr Leu Asp Gly Ser Asp Thr Ile Val Cys Asp Ser Asn Ser Thr
    770                 775                 780

Trp Asp Pro Pro Val Pro Lys Cys Leu Lys Val Ser His His His His
785                 790                 795                 800

His His
```

<210> 24
<211> 2415
<212> DNA
<213> Homo sapiens

<400> 24
atgaccgtcg cgcggccgag cgtgcccgcg gcgctgcccc tcctcgggga gctgccccgg 60
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gatgtaccta atgcccagcc agctttggaa ggccgtacaa gttttcccga ggatactgta 180
ataacgtaca aatgtgaaga aagctttgtg aaaattcctg gcgagaagga ctcagtgatc 240
tgccttaagg gcagtcaatg gtcagatatt gaagagttct gcaatcgtag ctgcgaggtg 300
ccaacaaggc taaattctgc atccctcaaa cagccttata tcactcagaa ttattttcca 360

gtcggtactg ttgtggaata tgagtgccgt ccaggttaca gaagagaacc ttctctatca 420
ccaaaactaa cttgccttca gaatttaaaa tggtccacag cagtcgaatt ttgtaaaaag 480
aaatcatgcc ctaatccggg agaaatacga aatggtcaga ttgatgtacc aggtggcata 540
ttatttggtg caaccatctc cttctcatgt aacacagggt acaaattatt tggctcgact 600
tctagttttt gtcttatttc aggcagctct gtccagtgga gtgacccgtt gccagagtgc 660
agagaaattt attgtccagc accaccacaa attgacaatg gaataattca aggggaacgt 720
gaccattatg gatatagaca gtctgtaacg tatgcatgta ataaaggatt caccatgatt 780
ggagagcact ctatttattg tactgtgaat aatgatgaag gagagtggag tggcccacca 840
cctgaatgct cgagtcctaa caaatgcacg cctccaaatg tggaaaatgg aatattggta 900
tctgacaaca gaagcttatt ttccttaaat gaagttgtgg agtttaggtg tcagcctggc 960
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ctaccaagct gctccagggt atgtcagcca cctccagatg tcctgcatgc tgagcgtacc 1080
caaagggaca aggacaactt ttcacctggg caggaagtgt tctacagctg tgagcccggc 1140
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gcccccacat gtgaagtgaa atcctgtgat gacttcatgg gccaacttct taatggccgt 1260
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aatagcagtg ttccagtgtg tgaacaaatc ttttgtccaa gtcctccagt tattcctaat 1440
gggagacaca caggaaaacc tctggaagtc tttccctttg gaaaagcagt aaattacaca 1500
tgcgaccccc acccagacag agggacgagc ttcgacctca ttggagagag caccatccgc 1560
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ctgggtcact gtgaggagcc accaacattt gaagctatgg agctcattgg taaaccaaaa 1680
ccctactatg agattggtga acgagtagat tataagtgta aaaaaggata cttctatata 1740
cctcctcttg ccacccatac tatttgtgat cggaatcata catggctacc tgtctcagat 1800
gacgcctgtt atagagaaac atgtccatat atacgggatc ctttaaatgg ccaagcagtc 1860
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gatcctgcac ctggaccaga tccattttca cttattggag agagcacgat ttattgtggt 2160
gacaattcag tgtggagtcg tgctgctcca gagtgtaaag tggtcaaatg tcgatttcca 2220
gtagtcgaaa atggaaaaca gatatcagga tttggaaaaa aattttacta caaagcaaca 2280
gttatgtttg aatgcgataa gggtttttac ctcgatggca gcgacacaat tgtctgtgac 2340
agtaacagta cttgggatcc cccagttcca aagtgtctta aagtgtcgca tcaccatcac 2400
catcactaaa gatct 2415

<210> 25
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic lipid tail sequence

<400> 25
Gly Ser Ser Lys Ser Pro Ser Lys Lys Lys Lys Lys Lys Pro Gly Asp
1 5 10 15

<210> 26
<211> 14
<212> PRT
<213> Homo sapiens

<400> 26
Val Ser Thr Ser Ser Thr Thr Lys Pro Ala Ser Ser Ala Ser
1 5 10

<210> 27
<211> 13
<212> PRT
<213> Homo sapiens

<400> 27
Gly Pro Arg Pro Thr Tyr Lys Pro Pro Val Ser Asn Pro
1 5 10

<210> 28
<211> 16
<212> PRT
<213> Homo sapiens

<400> 28
Thr Tyr Leu Thr Asp Glu Thr His Arg Glu Val Lys Phe Thr Ser Leu
1 5 10 15

<210> 29
<211> 23
<212> PRT
<213> Homo sapiens

<400> 29
Lys Ala Asp Gly Gly Ala Glu Tyr Ala Thr Tyr Gln Thr Lys Ser Thr
1 5 10 15

Thr Pro Ala Glu Gln Arg Cys
20

<210> 30
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 30
Ser Ser Pro Ala Pro Arg Cys Gly Ile
1 5

<210> 31
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
6xHis tag

<400> 31
His His His His His His
1 5

<210> 32
<211> 5
<212> PRT
<213> Homo sapiens

<400> 32
Ile Ile Pro Asn Lys
1 5

<210> 33
<211> 5
<212> PRT
<213> Homo sapiens

<400> 33
Ser Ser Pro Asn Lys
1 5

<210> 34
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 34
Gly Ile Leu Val
1

<210> 35
<211> 5
<212> PRT
<213> Homo sapiens

<400> 35
Gly Ile Leu Gly His
1 5